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We claim:

1	1. A meth	nod for ro	uting	signals i	in a netw	/orl	comprisin	g a	bacl	kbone and a	a plu	rality of
2	peering partners,	wherein	each	peering	partner	is	connected	to	the	backbone,	the	method
3	comprising:					`						

developing an address space map of the network, wherein the address space map
associates topological regions of the network with a particular set of signal
addresses; and

using the address space map to route signals on the backbone.

- 2. The method of claim 1, wherein signals are routed on the backbone using cold potato routing.
- 3. The method of claim 2, wherein cold potato routing carries a signal on the backbone to the backbone connection closest to the topological region of the network corresponding to the signal's address.
- 4. The method of claim 1, wherein the peering partners route signals to the backbone using hot potato routing.
- 5. The method of claim 4, wherein hot potato routing places a signal on the backbone connection closest to the topological region of the network corresponding to the signal's address.

1	6. The method of claim 1, wherein using the address space map to route signals further
2	comprises:
3	injecting a route preference for a route into the network; and
4	deaggregating a route that is aggregated across a plurality of topological regions of
5	the network according to the address space map.
1	7. A method for modifying routing using an address space map of a system having a
2	plurality of networks connected to a backbone via a plurality of entry points, the method
3	comprising:
4	monitoring the entry points of a plurality of messages arriving from the plurality of
5	networks;
6	correlating the plurality of message entry points with their associated message source
7	address ranges to develop an address space map of the system; and
8	using the address space map to implement modified routing.
1	8. The method of claim 7, wherein using the address space map to implement modified
2	routing further comprises:
3	subject to a determination that the amount of messages from a first source address
4	range arriving from a first path exceeds a first threshold amount, preferencing
5	all messages to a destination address within the first source address range to
6	travel via the first path.

1	9. The method of claim 8, wherein using the address space map to implement modified
2	routing further comprises:
3	subject to a determination that the first path has not been preferenced, and further
4	subject to a determination that the amount of messages from the first source
5	address range arriving from the first path exceeds a second threshold amount,
6	deaggregating a published route associated with the first source address range.
1	10. The method of claim 9, wherein the first source address range is a group of addresses
2	corresponding to the same Internet Protocol address and mask.
1	11. The method of claim 9, wherein the first threshold is a preset percentage of the total
2	amount of messages from a first source address range.
1	12. The method of claim 9, wherein the second threshold is a preset percentage of the
2	total amount of messages from a first source address range.
1	13. A method for performing traffic routing management in a network, the method
2	comprising:
3	monitoring source address ranges for a plurality of signals;
4	monitoring arrival network connection points for the plurality of signals; and
5	developing an address space map of the network.

1	14. The method of claim 13, further comprising:
2	using the address space map to route a signal to a network connection point closest to
3	a destination address range of the signal.
1	15. The method of claim 14, wherein using the address space map further comprises:
2	preferencing a route table route that is not selected naturally according to a network
3	routing protocol and is not prohibited according to a network configuration
4	parameter, subject to a determination that the route exceeds a signal quantity
5	threshold.
1	16. The method of claim 15, wherein the network routing protocol is the Border
2	Gateway Protocol.
1	17. The method of claim 15, wherein preferencing a route table route includes modifying
2	the local preferences for the route.
1	18. The method of claim 15, wherein the signal quantity threshold is a preset percentage
2	of the total number of signals from the source address range corresponding to the route.
1	19. The method of claim 15, wherein the signal quantity threshold is a preset number of
2	signals.
1	20. The method of claim 14, wherein using the address space map further comprises:

injecting a new route within the source address range of a signal into the network.

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- 21. The method of claim 20, wherein the step of injecting a new route includes issuing a route announcement using a Border Gateway Protocol session from an external system.
- 1 22. The method of claim 14, wherein using the address space map further comprises 2 reconciling differences between the address map and existing routes in the network.
- 23. The method of claim 13, wherein each source address range is an Internet Protocol address including a prefix length.
 - 24. The method of claim 13, wherein the network connection point is an interface.
 - 25. The method of claim 13, wherein developing the address space map of the network further comprises:
 - collecting route entries from a route table on a router in the network; and compiling signal traffic statistics entries on the monitored plurality of signals passing through the router in the network, wherein each signal traffic statistics entry includes a measure of the quantity of signals corresponding to a source address range.
- 26. The method of claim 25, further including correlating each signal traffic statistics entry with a route entry.
 - 27. The method of claim 27, wherein each signal is an Internet Protocol packet.

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automatically used to develop the address space map.

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1	28. The method of claim 25, wherein each signal traffic statistics entry further
2	comprises:
3	an Internet Protocol address;
4	a prefix length for the Internet Protocol address range; and
5	an associated route entry.
1	29. The method of claim 25, wherein each route entry comprises an advertised Border
2	Gateway Protocol route.
1	30. The method of claim 13, wherein the plurality of signals monitored includes the signals sent within the network.
1	31. The method of claim 13, wherein the plurality of signals monitored includes a
2	sampled portion of the signals sent within the network.
1	32. The method of claim 13, wherein the plurality of signals monitored includes:
2	a set of signals sent within the network; and
3	a set of signals generated to fill in portions of the address space map of the network.
1	33. The method of claim 13, wherein the plurality of signals monitored includes a set of
2	signals generated to provide substantially equal signal coverage of the network.

The method of claim 13, wherein monitoring is performed automatically and

1	35. The method of claim 14, wherein the process of using the address space map is
2	performed automatically.
1	36. The method of claim 15, wherein preferencing a route table route is performed
2	automatically.
1	37. The method of claim 20, wherein injecting a new route is performed automatically.
1	38. The method of claim 25, wherein compiling signal traffic statistics is performed
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2	automatically.
1	39. A computer program product for performing traffic routing management in a
2	network, the computer program product comprising:
3	a computer readable medium that stores program code including:
4	program code that monitors source address ranges for a plurality of signals;
5	program code that monitors arrival network connection points for the plurality of
6	signals; and
7	program code that develops an address space map of the network.
1	40. The computer program product of claim 39, further comprising:
2	program code that uses the address space map to route a signal to a network
3	connection point topologically closest to a destination address range of the
4	signal.

1	41. The computer program product of claim 40, wherein program code that uses the
2	address space map further comprises:
3	program code that preferences a route table route that is not selected naturally
4	according to a network routing protocol and is not prohibited according to a
5	network configuration parameter, subject to a determination that the route
6	exceeds a signal quantity threshold.
1	42. The computer program product of claim 40, wherein program code that uses the address space map further comprises:
3	program code that injects a new route within the source address range of a signal into the network.
1	43. The computer program product of claim 40, wherein program code that uses the
2	address space map further comprises program code that reconciles differences between the
3	address map and existing routes in the network.
1	44. The computer program product of claim 39, wherein program code that develops the
2	address space map of the network further comprises:
3	program code that collects route entries from a route table on a router in the network;
4	and
5	program code that compiles signal traffic statistics entries on the monitored plurality
6	of signals passing through the router in the network, wherein each signal

7	traffic statistics entry includes a measure of the quantity of signals
8	corresponding to a source address range.
1	45. The computer program product of claim 44, further including program code that
2	correlates each signal traffic statistics entry with a route entry.
1	46. A method for managing the routing of signals in a network, comprising:
2	receiving route entries from a route table in the network;
3	receiving Internet Protocol statistics data entries on signals flowing through one or
4	more routers on the network, wherein each Internet Protocol statistics data
5	entry includes a measure of the quantity of signals corresponding to a signal
6	source address range;
7	developing an address space map of the network using the route entries and Internet
8	Protocol statistics data entries; and
9	implementing the address space map.
1	47. The method of claim 46, wherein implementing the address space map comprises
2	selecting a preferred route.
1	48. The method of claim 47, wherein selecting the preferred route comprises:
2	selecting as the preferred route a route entry that is not selected naturally according to
3	a network routing protocol and is not prohibited according to a network
4	configuration parameter, subject to a determination that the route exceeds a

signal quantity threshold.

1	49. The method of claim 48, wherein the network routing protocol is the Border
2	Gateway Protocol.
1	50. The method of claim 47, wherein implementing the address space map further comprises selecting a deaggregation route.
1	51. The method of claim 50, wherein selecting the deaggregation route comprises:
2	selecting as the deaggregation route a route corresponding to a Internet Protocol
3	statistics data entry, wherein the route is more specific than the route table
4	route currently announced to the network.
1	52. The method of claim 51, wherein the more specific route has a longer prefix length.
1	53. A computer program product for managing the routing of signals in a network, the
2	computer program product comprising:
3	a computer readable medium that stores program code including:
4	program code that receives route entries from a route table in the network;
5	program code that receives Internet Protocol statistics data entries on signals
6	flowing through one or more routers on the network, wherein each Internet
7	Protocol statistics data entry includes a measure of the quantity of signals
8	corresponding to a signal source address range;
9	program code that develops an address space map of the network using the route

entries and Internet Protocol statistics data entries; and

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program code that implements the address space map.

1	54.	The com	outer progra	ım produ	ct of cl	laim 53,	wherein	program	code 1	that i	implem	ents
2	the address	space may	comprises	program	code th	hat selec	ts a prefe	erred rout	e.			

- 55. The computer program product of claim 54, wherein the program code that selects the preferred route comprises:
- program code that selects as the preferred route a route entry that is not selected
 naturally according to a network routing protocol and is not prohibited
 according to a network configuration parameter, subject to a determination
 that the route exceeds a signal quantity threshold.
 - 56. The computer program product of claim 54, wherein program code that implements the address space map further comprises program code that selects a deaggregation route.
 - 57. The computer program product of claim 56, wherein the program code that selects the deaggregation route comprises:
- program code that selects as the deaggregation route a route corresponding to a

 Internet Protocol statistics data entry, wherein the route is more specific than
 the route table route currently announced to the network.

1	58. In a system comprising a backbone connected to a content provider and a first
2	network connected to a content user, wherein the first network is connected by one or more
3	connections to a backbone, a method for routing traffic between the content provider and the
4	content user comprising:
5	placing the content provider traffic onto the backbone;
6	routing the traffic on the backbone to the first network; and
7	placing the traffic onto the connection between the first network and the backbone
8	that is topologically closest to the content user.
1	59. The method of claim 58, wherein the content provider is connected to the backbone
2	via an access point.
1	60. The method of claim 58, wherein the content provider is a World Wide Web content
2	provider.
1	61. The method of claim 58, wherein the system further includes a second network
2	connected to a content user, the method further including:
3	determining whether traffic was sent to the system via the first network or the second
4	network and selecting the network sending traffic to the system;
5	routing the traffic on the backbone to the selected network; and
6	placing the traffic onto the connection between the selected network and the
7	backbone that is topologically closest to the content user.

1	62. A system for routing network traffic, comprising:
2	a backbone;
3	a plurality of points of presence on the backbone, wherein each point of presence
4	collects traffic data and sends the traffic data to a network operations center;
5	and
6	a network operations center coupled to the backbone for receiving the traffic data,
7	analyzing the traffic data, and automatically modifying the routing policy of
8	the system based upon the analyzed data.
1	63. The system of claim 62, further including:
2	a plurality of peering partner networks, each peering partner network connected to the
3	backbone at one or more points of presence.
1	64. The system of claim 63, wherein each peering partner network is paid a fee for all
2	traffic the peering partner network receives from the backbone.
1	65. The system of claim 64, wherein at least one peering partner network provides transit
2	connections to other Internet service providers that are not part of a peering partner network.
1	66. The system of claim 62, further including:
2	one or more peering partners networks, each peering partner network connected to the
3	backbone at nine or more points of presence by an OC-3 line connection.

1	67. The system of claim 62, wherein each point of presence comprises:
2	a router for routing traffic between the backbone and one or more peering partner
3	networks, and wherein the router further generates Internet Protocol statistics
4	reports and reads the route tables and sends the Internet Protocol statistics
5	reports and the route tables to a computer; and
6	the computer for receiving the Internet Protocol statistics reports and the route tables
7	and sending the Internet Protocol statistics reports and the route tables to the
8	network operations center.
1	68. The system of claim 67, wherein the computer further correlates the Internet Protocol statistics reports and the route tables.
1	69. The system of claim 67, wherein the computer further receives preferred routes from
2	the network operations corresponding to a new routing policy.
1	70. The system of claim 69, wherein the computer further compares the new routing
2	policy to an existing routing policy, and implements the differences between the new and the
3	existing routing policies.
1	71. The system of claim 62, wherein the backbone is a Dense Wave Division Multiplexing system.

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data and the network operations center automatically analyzes the traffic data.

72. The system of claim 62, wherein each point of presence automatically collects traffic